REMARKS

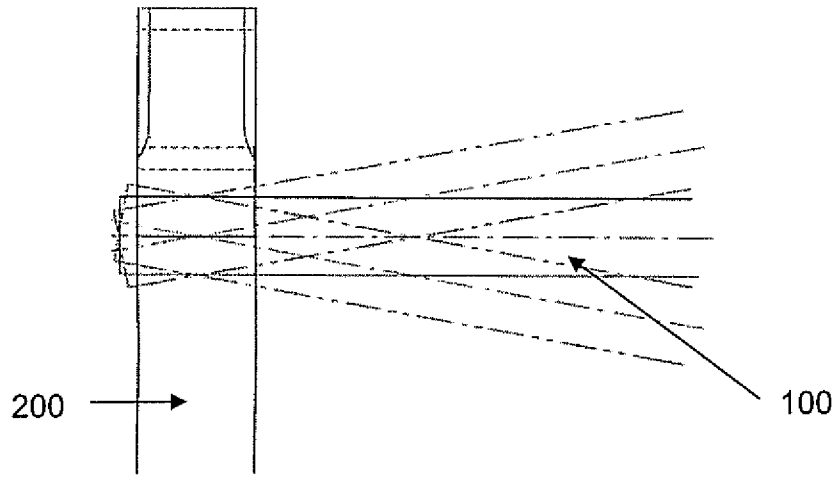
In the aforementioned Notice of Action, Claims 1-36 were rejected under 35 U.S.C. 102(b) as being anticipated by Reast (US 5,507,516). Claim 34 was rejected under under 35 U.S.C. 103(a) as being unpatentable over Reast in view of Cynamon et al. (US 2,485,434) and claims 1, 2, 10-11, 19, 20 and 23-25 were rejected under the same section as being patentable over Cynamon et al. in view of McGowen (US 1,441,545).

Independent claim 1 has been amended to incorporate a limitation found in independent claim 26, specifically the feature of "the opposed ends of the anti-roll device being mounted to the opposed leaf spring by rigid mounts sufficient to make the transverse anti-roll device into a double fixed ended characteristic beam in plan view". For the following reasons, it is respectfully submitted that none of the aforementioned references teach or suggest this limitation and therefore fail to anticipate or render obvious the presently claimed invention of claims 1 and 26.

Regarding Reast, the object of the prior art invention of this reference is to "increase the spring rate of a suspension proportional to increased suspension spring deflection during straight axle, static bounce motion" (column 1, lines 56-60). The inventive features of the suspension system described and illustrated in Reast are thus designed to change the load/deflection rate of the spring during normal ride when the wheels and spring deflect in the same direction, not to provide spring stiffening during roll only, as is the intended function of the present application. As the focus of Reast is thus concerned with counteracting rotation of the anti-roll device thereof under deflection of the springs in the same direction during straight axle, static bounce motion to apply a couple or moment to the springs to alter the deflection and rate thereof (column 2, first paragraph), the rigidity of the connection between Reast's anti-roll device and spring referred to in column 4, lines 21-23 refers only to rigidity in

directions considered important to the conventional anti-roll function of the device and this new function of counteracting rotation of the anti-roll device to apply a couple or moment to the springs during straight axle, static bounce.

As outlined in page 6, lines 20-24 and page 16, lines 4-20 of the present application, prior art anti-roll devices are mounted to the opposed leaf springs with a degree of flexibility that allows the transmission of torque created by the torsionally rigid anti-roll member but renders this member an essentially pin-jointed beam in plan view. This flexibility included in conventional mounting of a anti-roll device to between a pair of leaf springs on opposed sides of a vehicle is illustrated in the following figure, which shows a schematic plan view of a connection between an anti-roll tube 100 and one of the two opposed leaf springs it is mounted transversely to.



As illustrated above, the flexibility included in conventional mounts of this type allows the anti-roll device 100 to undergo generally pivotal motion about an imaginary pin axis extending upward through the leaf spring at the connection thereof to the anti-roll device. While the range of this relative motion, illustrated by the broken-line positions of the anti-roll device 100, is shown in an exaggerated manner, this movement in plan is conventionally allowed for by including a sufficient degree of flexibility in the spring

and tube connection so that this pin-jointed motion characteristic of the anti-roll device, illustrated as transverse tube 100, accommodates different longitudinal movements of the opposed leaf springs relative to each other. This flexible in plan conventional arrangement differs notably from the fixed-ended in plan beam characteristic of the present invention illustrated in Figure 9 of the present application, where it can be seen that the completely rigid mounting of the anti-roll member 12 to the springs 1 results in the anti-roll member being stressed, rather than merely pivoting, in plan view under fore and aft movement of respective ends of the anti-roll member, causing higher resistance forces F at the ends of the anti-roll member which in turn create moments about the springs' neutral axes in bending that resist the change in bending and accordingly reduce spring deflection during opposing deflection of the springs in opposite directions during vehicle roll (page 19, lines 1-31).

There is nothing in the teachings of Reast to suggest that the conventional pin-jointed flexibility in plan view is lost in the addition of the rotation counteracting components of Reast's invention to a conventional anti-roll leaf spring suspension. Like the degree of rigidity needed in the conventional connection of an anti-roll member to the leaf springs in order to perform an anti-roll function, the rigidity needed to have Reast's anti-roll member rotate under the same direction deflection of the leaf springs and provide a couple to the springs when such rotation is counteracted is only a side view rigidity, in that the connection between the anti-roll device and each leaf spring is fixed relative to the spring as viewed from the side of the vehicle. With reference to Reast's embodiment of Figure 1 as an illustrative example, the anti-roll suspension differs from conventional prior art anti-roll suspensions only in the presence of the arms 14 fixed to the anti-roll tube 13 and the springs 16 connected between the distal ends 15 of the arms 14 and the vehicle frame 17. There is nothing in the reference to suggest that the connection of the anti-

roll tube 13 to each spring 11 is modified to render the anti-roll tube 13 "fixed-ended in plan view" as presently claimed, contradictory to the conventional "pin jointed in plan" configuration of such connections.

The inclusion of directional flexibility in Reast's connection between the spring and anti-roll device is clearly demonstrated by Reast's Figure 8 embodiment, where the connection of the anti-roll bar tube 53 carried in the cylindrical eye of a resistance arm 54 to the leaf springs 81, 81' is provided by a shear bracket 82 connecting the resistance arm 54 to the leaf springs 81, 81'. Resilient spacers 83, 83' provide flexibility in this connection, meaning that the connection of the anti-roll device to the spring is definitely not entirely rigid. Description of the resilient spacers can be found on page 15, lines 7-27 of the international phase publication of Reast (WO 92/22438; copy enclosed). This clear indication that the "rigidity" of the spring and anti-roll tube connection referred to in column 4, lines 21-23 of Reast does not denote rigidity in all directions, together with the fact that this connection conventionally provides the anti-roll device with plan view pin-jointed characteristics, outlines the failure of Reast to anticipate the presently claimed fixed ended in plan arrangement of the present invention's anti-roll device. In other words, an ordinary person of skill in the art reviewing Reast at the time of the present invention would understand the rigidity referred to in Reast's indication that "an anti-roll device, here shown as a torsion bar or tube 13, has its ends connected rigidly to respective ends of the leaf springs" to refer to only a rigidity of this connection as viewed from the side of the vehicle and not to contradict the conventional "pin-jointed in plan" anti-roll device mounting arrangements of the time.

Therefore, Reast does not teach the limitation that the opposed ends of the anti-roll device are mounted to the opposed leaf springs "by rigid mounts sufficient to make the transverse anti-roll device into a double fixed ended characteristic beam

in plan view", as now explicitly included in each of the independent claims of the present application.

In addition to the above described amendment of independent claim 1, new dependent claims 37 to 39 have been added, with dependent claims 20, 23 and 24 having accordingly been cancelled to retain the same overall number of independent an dependent claims.

New claims 37 and 38 are dependent on independent claims 1 and 26 respectively, and add the limitation that the anti-roll device is arranged to connect to the vehicle chassis only through its connection to the leaf springs. This further distinguishes the claimed invention from the prior art anti-roll suspension of Reast, where the anti-roll tube is additionally connected to the vehicle frame or chassis in order to counteract the rotation of the tube under same direction deflection of the leaf springs during straight axle, static bounce motion in order to apply a moment in the springs and change the deflection and rate of the springs. Without this additional connection, Reast's anti-roll tube could not perform this intended function. Therefore, with reference to section 2143.01V of the MPEP, there is no motivation to modify Reast to include the limitations of new claims 37 and 38 as such modification would render the prior art suspension system unsuitable for its intended purpose. It is therefore submitted that new claims 37 and 38 are both novel and non-obvious having regard to Reast. The specification has been amended on page 16 to include explicit support for these new claims within the description, but this addition does not constitute new subject matter, as the originally filed drawings show that the suspension system is only connected to the vehicle chassis at the ends of the springs on which the anti-roll device is mounted.

New claim 39 is a copy of claim 34, but amended to be dependent on independent claim 1 rather than independent claim 26. New claim 39 adds the

limitation that the rigid mounts connecting the anti-roll device to the leaf springs make use of U-bolts fastened to embrace around the springs. It is respectfully submitted that the subject matter of claims 34 and 39 are not obvious having regard to Reast in view of Cynamon et al. As outlined herein above, the mounting of the anti-roll tube of Reast to the leaf springs is such that the tube is pin-jointed when viewed in plan. Cynamon et al. describes the U-bolt connection of the stabilizing bar 10 to the leaf springs 17 only as "strong, yet resilient" (column 2, lines 14-17). As a result, there is nothing in Cynamon et al. and Reast to suggest that should the U-bolt clamping arrangements of Cynamon et al. be incorporated into Reast's suspension system, they should be made sufficiently rigid to render Reast's anti-roll tube "a double fixed ended characteristic beam in plan view", as now expressed in each independent claim of the present application. In fact, a person of skill in the art would not have been motivated to make Cynamon et al.'s U-bolt clamping arrangements sufficiently rigid during incorporation into Reast's suspension so as to not allow pin-jointed in plan flexibility of the anti-roll device, as at the time of the present invention, such flexibility in the connection of the anti-roll device to the springs was standard within the art, and it was only in the development of the present invention that it was realized that removal of such flexibility to render the connection sufficiently rigid to make the anti-roll member double fixed ended in plan could be used to reduce a change in bending moments during load changes created by vehicle roll as described in the present application. Therefore, a person of skill in the art would not have been motivated to incorporate the U-bolt connections of Cynamon et al.'s rear axle housing support into the anti-roll suspension system of Reast in such a way as to achieve the claimed subject matter of the present application, as this contradicted the state of the art and common knowledge in the field at the time of the present invention.

Regarding the obviousness rejection to claim 1 and the claims dependent thereon based on the assertion that it would have been obvious to modify Cynamon et al.'s suspension system move the transverse member 10 from proximate the spring's connection to the vehicle axle to an end portion of the leaf spring proximate the spring's connection to the vehicle chassis, it is submitted that there is no motivation to perform such a modification. Column 1, lines 3 to 7 of Cynamon et al. outline the principal object of the prior art invention as "the provision of means for supporting the rear end of automobiles and motor trucks and preventing buckling thereof when the vehicle is started suddenly or when it is operating under a severe load." Column 1, line 42 to column 2, line 1, indicates that Cynamon et al.'s invention "includes as its principal component part a stabilizing bar 10.....connected to the forward end 12 of the rear end housing 13" and that "the complete housing for the entire rear end comprises the large globular portion 13, housing the differential bevel gears and the extending neck or forward portion 12 housing the pinion, and these two portions comprise the complete housing for the entire rear end unit which includes the pinion." With reference to Figure 1 of Cynamon et al., moving the bar 10 away from its illustrated position adjacent the axle at the forward end 12 of the rear end housing 13 toward the end of the springs moves the bar away from the rear end housing 13 it is intended to support, and therefore is completely contradictory to the principal teachings of the reference. Moving Cynamon et al.'s bar 10 right to the end of the springs based on the positioning of the connections between McGowen's U-shaped bar 12 and springs 11 would therefore render Cynamon et al.'s bar 10 unsuitable for its intended purpose of supporting the rear end housing 13. Therefore, with reference to section 2143.01V of the MPEP, there is no motivation to modify Cynamon et al. to include the limitation of claim 1 that the ends of the anti-roll device are mounted to leaf springs at nearer to where the springs mounts to the vehicle chassis than to where

the springs connect to the vehicle axle, as such modification would render the prior art unsuitable for its intended purpose.

Furthermore, a person of skill in the art would not have been motivated to relocate the connection of Cynamon et al.'s stabilizing bar to the springs based on the positioning of McGowen's U-shaped bar relative to the springs, as the U-shaped bar 12 of McGowen has a purpose and installation completely different than that of Cynamon et al. and that of the present invention. The object of McGowen's invention, as outlined in page 1, lines 9-14 of the reference's description, is "the provision of means whereby the extent of the base of the spring support for the chassis of a motor vehicle may be increased longitudinally of the vehicle." Figure 6 shows the installation of the U-shaped bar 12 and springs 11 of McGowen at the front end of a vehicle chassis 1. Each leaf spring 11 is connected to the stub axle 9 of a respective front wheel 6 of the vehicle at one end and is connected to the U-shaped bar 12 near a distal end thereof spaced forwardly from the vehicle chassis 1 and front wheels 6. The U-shaped bar of McGowen is thus used not as a rear end housing support or an anti-roll device, but instead functions only as an extension of the vehicle's chassis arranged to provide a spring mounting position longitudinally outward of the vehicle's original chassis. With reference to Figures 5 and 6 and page 1, lines 103-112 of McGowen, the central portion or base of the U-shaped bar 12 "is received within the channel of the front side of the chassis frame 1, the base being maintained in assembly with the chassis frame by means of the U-bolts 13 that embrace the front side of the frame ad the base of the U-shaped portion". The U-shaped bar 12 thus forms an extended portion of the chassis at which the connection of the springs 11 to the chassis is effected. Therefore, a person of ordinary skill in the art would correlate the bar 12 of McGowen with the vehicle chassis of Cynamon et al, not the stabilizing bar 10 thereof, and as a result would not be motivated to reposition Cynamon et al.'s

stabilizing bar 10 along the springs based on the relative positioning of McGowen's frame extension 12 and springs 11.

Claim 1 has also been amended to indicate that the axle is supported generally centrally between the mounting of the springs to the vehicle chassis at opposite ends of the springs to better distinguish the claim over references such as McGowen where each leaf springs is instead connected to an axle at an end of the spring.

In view of the foregoing, it is believed that the claims of the present application are patentably distinguished from the prior art, and therefore should be found allowable. Further and more favorable consideration is requested.

Respectfully submitted

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